

Notice of Allowability

Application No.

10/667,013

Examiner

Luan Thai

Applicant(s)

TSAI ET AL.

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 19 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/3/04 3/19/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Luan Thai
LUANTHAI
PRIMARY EXAMINER

12/9/04

DETAILED ACTION

1. Claims 1-26 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The cited art taken either singly or in combination with other prior arts fails to anticipate or fairly suggest the limitations which the Applicant claims in a manner which would warrant a rejection under 35 U.S.C. § 102 or 35 U.S.C. § 103, especially when these limitations are considered within the specific combination claimed.

The cited art, U.S. Pat. No. 5,286,344 to Blalock et al., discloses a method for forming an opening in a multiplayer structure. Blalock et al., however, fails to teach or fairly suggest, among others, at least the method steps of: a) *performing a plasma treatment on the photoresist layer using a nitrogen-based gas; and performing a wet strip to remove the patterned photoresist layer*, as claimed in claim 1; b) *performing a plasma treatment on the exposed portion of the stop layer, removing at least the exposed portion of the stop layer to expose a portion of the metal silicide layer, depositing a barrier layer over the exposed portion of the metal silicide layer, and planarizing any layers above the ILD layer to expose the ILD layer*, as claimed in claim 5; c) *performing a plasma treatment on the exposed portion of the middle layer using a nitrogen-based plasma, and removing the exposed portion of the middle layer using a wet strip process, wherein damage to the lower layer is minimized due to the plasma treatment*, as claimed in claim 12; and d) *applying a nitrogen plasma treatment to at least a portion of the etch stop layer, and removing the treated portion of the etch stop layer to expose a portion of the underlying metal silicide layer, wherein the plasma treatment reduces damage to the*

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underlying metal silicide layer that occurs during the removing of the treated portion of the etch stop layer, as claimed in claim 18.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:45 AM - 4:15 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Luan Thai

Primary Examiner

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December 9, 2004